

First named inventor: Soar  
Serial no. 10/646,489  
Filed 8/23/2003  
Attorney docket no. 200206930-1

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### REMARKS

#### Supplemental IDS

Applicant filed two Forms 1449 in conjunction with this patent application. The first Form 1449 was filed with the patent application itself. The Examiner in the office action provided an initialed copy of this Form 1449, indicating that the references cited thereon were considered.

The second Form 1449 was filed in a supplemental IDS on January 11, 2004. The Examiner, however, did not provide an initialed copy of this second Form 1449 with the office action. Applicant requests that the Examiner in the next office action provide an initialed copy of this Form 1449. As a convenience, copies of the supplemental IDS, including the Form 1449, as well as the stamped return-receipt postcard received from the USPTO in conjunction with the filing of this supplemental IDS, are attached to this response.

#### Claim rejections under 35 USC 102

Claims 1 and 6-7 have been rejected under 35 USC 102(b) as being anticipated by Houston (4,931,657). Claim 1 is an independent claim, from which claims 6-7 depend. Applicant respectfully traverses this rejection as to claim 1, such that claims 6-7 are patentable over Houston for at least the same reasons. Applicant provides two independent and separate reasons why Houston does not anticipate the claimed invention, as are now discussed in detail.

#### *Houston does not disclose two light sources as in the claimed invention*

The claimed invention is limited to a first light source positioned incident to a first side of the media, and a second light source positioned incident to a second side of the media opposite the first side of the media. Applicant firmly but respectfully submits that the Examiner has mischaracterized Houston in asserting that Houston discloses this aspect of the claimed invention. Applicant can understand the Examiner's construing Houston as he did, but requests that the

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Examiner read through Applicant's argument to understand why Houston does not indeed disclose two light sources as in the claimed invention. In particular, at the end of Applicant's argument what is believed to be the source of confusion in the Examiner's misconstruing Houston is presented.

Houston *appears* to disclose the claimed invention in FIG. 7, which *appears* to show two light sources 100 and 200 as is claimed. However, Houston discloses that not the light sources are not *both* used – rather the light source 100 is present *or* the light source 200 is present. FIG. 7 is described as follows in Houston.

The dirt counter is very similar to the formation tester however the strobe light 100 is **REPLACED BY** a strobe light 200 positioned above the web 102, i.e., on the same side of the web 102 as camera 104 . . . .

(Col. 7, ll. 48-52) (Emphasis added) Thus, Houston does not disclose a first light source to one side of the media, and a second light source to the other side of the media, as in the claimed invention. Rather, Houston discloses that the strobe light 100, positioned below the media, is REPLACED BY a strobe light 200, positioned above the media. Both light sources are not used or present in Houston in the embodiment of FIG. 7, in contradistinction to the claimed invention. “[T]he [prior art] reference must *describe* the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it.” (In re Spada, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990)) Here, Houston *appears* to disclose the claimed invention in FIG. 7, but *describes* something entirely different than the claimed invention, and which on its face is not the claimed invention. That is, you have to read Houston's description of FIG. 7 to see exactly what Houston is disclosing in FIG. 7 – and what Houston says is disclosed in FIG. 7 is not the claimed invention.

Houston goes on to describe the technique by which using a single light source, specifically the strobe light 200 positioned on the same side of the media as the camera 104, can be employed to detect/count dirt on the media.

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$$\%dirt = \sum_{i=0}^{i=threshold} (f_i) \times \left( \frac{100}{Total \# of pixels} \right)$$

where

i = intensity

f<sub>i</sub> = no. of pixels with intensity i

In this manner, all of the pixels having an intensity below a selected threshold level are counted as dirt particles . . . .

(Col. 8, ll. 1-11) Houston also indicates that the “intensity” in this equation is equated to “reflectance,” which makes sense because the strobe light 200 is positioned on the same side of the media as the camera 104 is.

The operation of the strobe light 200 and of the camera 104 are synchronized so that the camera 104 generates frames of data when the surface is instantaneously illuminated by the strobe light 200 . . . . The data for these images . . . is digitized to provide a digitized signal . . . to determine the number of areas or pixels of LOW REFLECTANCE below a certain selected threshold intensity level as defined by equation 4 [which is the equation that has been excerpted above].

(Col. 7, ll. 54-68) (Emphasis added)

Now, Houston says that “[t]his technique may *also* be used with the strobe on the opposite side of the paper to the camera, i.e. strobe light 100, only if the web transmits sufficient light.” (Col. 8, ll. 24-26) Applicant believes that this excerpt of Houston is the primary source of confusion as to what the Examiner believes Houston is disclosing. Houston is not disclosing that the *strobe light 100* may *also* be used with or in conjunction with the strobe light 200 (i.e., as in the claimed invention) – rather, Houston is saying that the *technique* that has been described in relation to the strobe light 200 (viz., the equation excerpted above) may *also* be used with the strobe light 100, if the media sufficiently transmits light. In other words, you do not have to replace the strobe light 100 with the strobe light 200 to detect dirt, and instead can still use just the strobe light 100, if the media “transmits sufficient light.” [That is, rather than equating intensity to reflectance, as you do if you are using the strobe light 200, Houston also is inherently saying that you can equate intensity to transmittance, if the media sufficiently transmits light and if

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you are using the strobe light 100 positioned on the opposite side of the media in relation to the camera 104.]

At the end of the day, Houston discloses using one strobe light to detect/count dirt – the strobe light 200 always, and alternatively the strobe light 100 if the media transmits sufficient light. Houston therefore does not disclose *both* a first light source positioned incident to a first side of the media, *and* a second light source positioned incident to a second side of the media opposite the first side. Rather, Houston discloses *either* such a first light source *or* such a second light source – and not *both* as in the claimed invention. Therefore, Houston does not anticipate the claimed invention.

*Houston does not use a ratio of light transmitted through media to light reflected off media*

The claimed invention is further limited to a controller that detects at least one characteristic of the media “based on a ratio of the first light to the second light,” where the first light” is the detected light as “transmitted through the media” and the second light is the detected light as “reflected off the media.” Thus, the ratio of the first light to the second light is the ratio of light transmitted through the media to the light reflected off the media.

The Examiner states in the office action that “the use of a ratio would be inherent into the device as such would allow for the determination of the intensity of light,” without further explanation. However, as an initial matter, the Examiner is in fact required to “provide rationale or evidence tending to show inherency,” (MPEP sec. 2112). In particular,

when an examiner relies on inherency, it is incumbent on the examiner to point to the “page and line” of the prior art which justifies an inherency theory. . . . The examiner has left applicant and the board to guess at the basis of the rejection and after having us guess would have us figure out (i.e., further guess) what part of which [prior art] document supports the rejection. We are not good at guessing; hence, we decline to guess.

(Ex parte Schricker, 56 USPQ2d 1723, 1725 (BPAI 2000) (unpublished) Here, too, the Examiner has not provided any reference to a “page and line” of Houston that justifies the

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inherency theory proffered by the Examiner. Therefore, as an initial matter, Applicant submits that the Examiner has failed to demonstrate a *prima facie* case of anticipation.

Applicant further strongly but respectfully disagrees with the Examiner's conclusion of inherency, based on the teachings of Houston itself. The use of a ratio of transmitted light to reflected light is not inherent to determining the intensity of the light in Houston, as is now discussed in detail. As the legal standard governing this discussion, Applicant notes that "[i]nherency, however, may *not* be established by probabilities or *possibilities*. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient." (Continental Can Co. USA v. Monsanto Co., 20 USPQ2d 1746, 1749 (Fed. Cir. 1991)) Rather, the extrinsic evidence "must make clear that the missing descriptive matter is *necessarily present* in the thing described in the reference." (*Id.*) Furthermore, Applicant particularly requests that the Examiner carefully consider the tail end of this argument, in which it is discussed how using the ratio of transmitted light to reflected light would mean that Houston would not even be operable (and thus such that using this ratio is definitely not be considered as inherent to Houston).

First, the intensity of light is determined at each pixel in Houston, such that Houston presents the equation noted above in which "all of the pixels having any intensity below a preselected threshold level are counted as dirt particles." (Col. 8, ll. 9-11) The issue then is how this intensity of light is determined, and whether using the ratio of transmitted light to reflected light, as in the claimed invention, is "inherent" in this disclosure of Houston.

Houston, however, describes that these intensities are achieved by simply using just the strobe light 200, such that the intensities are the reflectances at each of the pixels. The following excerpt of Houston was presented above, and is re-presented here to demonstrate that intensity equates to reflectance.

The operation of the strobe light 200 and of the camera 104 are synchronized so that the camera 104 generates frames of data when the surface is instantaneously illuminated by the strobe light 200 . . . . The data for these images . . . is digitized to provide a digitized signal . . . to determine the number of areas or pixels of

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**LOW REFLECTANCE** *below a certain selected threshold intensity level as defined by equation 4* [which is the equation that has been excerpted above].

(Col. 7, ll. 54-68) (Emphasis added) Thus, as an initial matter, there is nothing *inherent* in using a ratio of transmitted light to reflected light in determining a characteristic of the media, since Houston discloses simply how just the reflected light can be used to determine a characteristic of the media. That is, it is not *necessary* in Houston to use this ratio, which is required by the legal standard for inherency, even if the best-case scenario is that such a ratio could *possibly* be used.

Furthermore, as has been described above, the technique Houston ascribes to reflected light, in relation to the strobe light 200 positioned on the same side of the media as the camera 104, can also be used with the strobe on the opposite side of the media to the camera (i.e., as the strobe light 100), “only if the web transmits sufficient light.” (Col. 8, ll. 24-26) In this embodiment of Houston, the intensity of light is taken as the transmittance of the light – since there is still only one light source being employed, the strobe light 100 instead of the strobe light 200. Therefore, what is inherent in Houston in this embodiment is that pixels having a **LOW TRANSMITTANCE**, instead of a **LOW REFLECTANCE**, can be counted. What is not inherent in Houston in either of its dirt-counting embodiments is the *necessary use* of the ratio of transmittance to reflectance, which is required by the legal standard for inherency, as opposed to the *possible use* of this ratio.

Finally, Applicant submits that using a ratio of light transmitted to light reflected would render Houston inoperable – such that Houston could not then be said to inherently disclose use of such a ratio. The key in Houston is that “all of the pixels having an intensity *below a preselected threshold level* are counted as dirt particles.” (Col. 8, ll. 9-11) Thus, Houston measures the intensities of all the pixels, either by using the reflectance of light at each pixel with the strobe light 200, or the transmittance of light at each pixel with the strobe light 100, the latter approach able to be used “only if the web transmits sufficient light.” (Col. 8, ll. 24-26)

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Therefore, consider what would happen if instead of the reflectance or transmittance being used as the intensity of a given pixel, the ratio of transmission to reflectance were used. For descriptive convenience, it is presumed that a non-dirty pixel has a transmittance of 100%, and a reflectance of 100%, which makes sense, because a very clean pixel would both transmit light the best (as compared to a dirty pixel) and reflect light the best (as compared to a dirty pixel). Furthermore, it is presumed a dirty pixel has a transmittance of 1%, and a reflectance of 1%, which also makes sense, because a very dirty pixel would both transmit the light the worst (as compared to a clean pixel) and reflect light the worst (as compared to a clean pixel). [This further is the case insofar as Houston discloses comparing an intensity of a pixel, regardless of whether it is transmittance or reflectance, to a predetermined threshold to determine dirtiness, such that high reflectances and transmittances equate to clean pixels, and low reflectances and transmittances equate to dirty pixels.]

Now, the ratio of transmittance to reflectance for the non-dirty pixel is 100% divided by 100%, which equals 1. However, the ratio of transmittance to reflectance for the dirty pixel is 1% divided by 1%, which also equals 1. Thus, Houston could not operate, since it is comparing the intensity of a pixel to a predetermined threshold to determine whether the pixel is dirty or not dirty – but if the transmittance-reflectance ratio of a maximally clean pixel is equal to the same transmittance-reflectance ratio of a maximally dirty pixel, then there is no way to compare these ratios to a threshold to determine whether the pixel is dirty or not dirty.

By comparison, using what *is* inherent in Houston – comparing *either* the reflectance *or* the transmittance of a pixel as the intensity of the pixel to the predetermined threshold – does yield whether the pixel is dirty or not dirty. Say the predetermined threshold is 30% reflectivity or transmittance. The non-dirty pixel has 100% transmittance and 100% reflectivity, such that comparing either of these values to the 30% threshold yields the conclusion that the pixel is in fact not dirty. Similarly, the dirty pixel has 1% transmittance and 1% reflectivity, such that comparing either of these values to the 30% threshold yields the conclusion that the pixel is in fact dirty.

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Therefore, if anything, Houston *inherently discloses that a ratio of transmittance to reflectance CANNOT be used*, in contradistinction to the claimed invention. The ratio of transmittance to reflectivity, for purposes of measuring dirt as in Houston, does not provide any useful measure to any degree. Therefore, Houston also does not anticipate the claimed invention in detecting at least one characteristic of the media based on a ratio of transmitted light detected to reflected light detected.

#### Claim rejections under 35 USC 103

Claims 2-5 and 8-35 have been rejected under 35 USC 103(a) as being unpatentable over Houston alone. Claims 2-5 and 8-14 are dependent claims depending from claim 1, and therefore are patentable for at least the same reasons that claim 1 is, as has been discussed above.

Claim 15 is an independent claim, from which claims 16-19 depend. Claim 15 is limited to detecting at least one characteristic of media "based on a ratio of light transmitted through the media and light reflected off the media." Therefore, claim 15 is patentable for the reasons discussed above as to why Houston does not disclose using such a ratio of transmitted light to reflected light. Claims 16-19 are patentable for at least the same reasons that claim 15 is.

Claims 20 and 23 are independent claims, from which claims 21-22 and claims 24-35, respectively, depend. Claims 20 and 23 are limited to detecting or determining at least one characteristic of media based on "first light transmitted through the media" and "second light reflected off the media," where claim 23 is particularly limited to such determination using two light sources. Therefore, claims 20 and 23 are patentable for the reasons discussed above as to why Houston does not disclose using two light sources, such that Houston does not disclose using both transmitted light and reflected light to detect or determine at least one media characteristic. Claims 21-22 and claims 24-35 are patentable for at least the same reasons that claims 20 and 23 are.



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Conclusion

Applicants have made a diligent effort to place the pending claims in condition for allowance, and request that they so be allowed. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Mike Dryja, Applicants' Attorney, at 425-427-5094, so that such issues may be resolved as expeditiously as possible. For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,



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Date

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